Evaluation of Genetic Diversity in Carbapenem- Resistant Acinetobacter baumannii Isolates From Intensive Care Units of Shiraz Namazi Hospital by Modified Amplified Fragment Length Polymorphisms Analysis (AFLP)

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Background & Objectives: Acinetobacter is a major concern because of its rapid development of resistance to a wide range of antimicrobial agents and its association with nosocomial infections with high mortality rates. Although carbapenems, such as imipenem, have become the drugs of choice for treatment, carbapenem-resistant *A. baumannii* outbreaks have recently been reported worldwide. For dearth of information of the organisms especially in Iran, with the aim of investigating population diversity of nosocomial *Acinetobacter baumannii* isolates and obtaining a comprehensive view of the emergence of carbapenem resistance Acinetobacter isolates collected from patients admitted in Shiraz Namazi hospital, Iran, we have analyzed, by the amplified fragment length polymorphism (AFLP).

Methods: The clinical isolates were collected from samples of intensive care units of Shiraz Namazi hospital from 2010-2011. After culturing; *A. baumannii* isolates were identified by API 20NE until species level, then were tested for antimicrobial susceptibility, by using micro-broth dilution methods according to Clinical and Laboratory Standards Institute (CLSI) methods. Culturing, extraction of DNA by DNA purification Kit (Bioneer) were performed then DNA was digested with MboI and MseI simultaneously with adapters ligated. Pre-amplification and sensitive amplification were done. Amplified fragments were analyzed using SYNGENE Gel Analysis software (version 3.08.3, Cambridge, UK) software.

Results: 50% of strains were resistance to imipenem and dendrogram patterns showed that four groups of strains (clone A-D) were distinguished; clone A 47% (2sub clone A1 1% , A246%) , B 15% , C 5%, D 33%.

Conclusion: In present study,modified AFLP, as a tool in molecular epidemic was used for identification of *A. baumannii* at the strain level in Iran for first time. The AFLP has several advantages compared to various other typing methods, including discriminatory power, flexibility, reproducibility, and production of clear banding patterns suitable for computerized analysis.

Keywords: *Acinetobacter baumannii*; Carbapenem Resistant; AFLP